IN THE SPECIFICATION:

Please amend the paragraph starting at page 1, line 10 and ending at line 22, as follows:

B1

--Fig. 2 shows a construction of a conventional signal processing apparatus using image pickup devices of a complementary ~~the complementary~~ color system. Color filters of four colors of Mg (magenta), G (green), Cy (cyan), and Ye (yellow), ~~(yellow)~~ as shown in Fig. 3, ~~3~~ are adhered to the image pickup devices ~~every~~ for each device, in order. An output signal from the image pickup device is transmitted through an OB (Optical Black) circuit 201, an individual difference variation correction circuit (pixel gain circuit) 202, a WB ~~WB~~ (White Balance) circuit 203, and an offset circuit 204 and separately supplied to a luminance signal formation processing system and a chroma signal formation processing system.--

Please amend the paragraph starting at page 3, line 10 and ending at line 13, as follows:

B2

--However, when the luminance signal and the chroma signal are gamma converted into signals having ~~the signal of~~ the same number of bits as in the above conventional technique, the following problems occur.--

Please amend the paragraph starting at page 3, line 14 and ending at line 22, as follows:

B3 Cont

--Generally, each of RGB of an output range of a monitor, ~~monitor~~ as an output apparatus, ~~apparatus~~ consists of 8 bits, ~~bits~~ and there are gamma characteristics as

shown by a curve 401 in Fig. 4. An output of the camera is a linear signal in which, for example, each of RGB consists of 11 bits. It is, therefore, necessary to non-linearly compress (gamma conversion) the camera output to a signal having ~~the signal of~~ the number of bits of the output apparatus, ~~apparatus~~ in accordance with the characteristics of the monitor.--

Please amend the paragraph starting at page 3, line 23 and ending at page 4, line 9, as follows:

--Therefore, although ~~the~~ linear conversion of a luminance ~~the luminance~~ signal is preferable, so as to prevent ~~a~~ deterioration of the hue, when ~~the~~ linear conversion is performed, an image becomes dark ~~a dark image~~ due to ~~an~~ influence by the gamma characteristics, of the monitor. To accurately reconstruct the gradations of the luminance, therefore, a reverse gamma conversion of the monitor characteristics as shown by a curve 402 in Fig. 4 (a curve 504 in Fig. 5), is performed. Although there is a slight deviation of the hue, the accurate gradation reconstruction of the luminance is held. If there is such a gamma curve, however, the image becomes an image which lacks ~~lacks a~~ contrast in a middle luminance area of a main object.--

Please amend the paragraph starting at page 4, line 10 and ending at page 5, line 7, as follows:

--Hitherto, therefore, a gamma curve which can enhance a contrast of a draw area (middle luminance area) of the main object, ~~object~~ as shown by the curve 502 in Fig. 5, is ~~5 is~~ used or a plurality of gamma curves according to the application are selectively used in accordance with a mode. In the case where ~~of using the~~ data of a curve, ~~the curve~~

as shown by the curve 502, is used in order to improve the contrast of the main object, it is necessary to further reduce the gradations in the low luminance area or high luminance area by an increased amount of the contrast in the middle luminance area. In this case, as shown in Fig. 5, particularly ~~particularly,~~ in a high luminance and high saturation area of the chroma signal, an output signal difference between R and G in an output of the 8-bit C gamma circuit 213 shown in Fig. 5(a) is smaller than an output signal difference between R and G of the 8-bit C gamma circuit at the timing before the gradations of the middle luminance area in Fig. 5(c) are increased, the saturation is deteriorated, and the output signal difference between B and G is not largely changed, so that the hue ~~is~~ remarkably deviates. ~~deviated.~~ There are, consequently, ~~such~~ drawbacks that occur, such as deterioration in ~~that the~~ color reconstruction of the high luminance area of the image after ~~the~~ gamma conversion ~~deteriorates~~, likelihood the image will ~~is likely to~~ be white skipped, and ~~and a~~ discoloration ~~occurs~~.--

Please amend the paragraph starting at page 5, line 8 and ending at line 11, as follows:

--An example of the conversion of the chroma signal in the case of a ~~the~~ gamma system when the conventional 8-bit C gamma curve 502 is used will be discussed ~~mentioned~~ hereinbelow.--

Please amend the paragraph starting at page 8, line 24 and ending at page 9, line 6, as follows:

--A black component is removed from a complementary signal (MgCyYe) from image pickup devices (not shown) by an OB (Optical Black) circuit 101 and a

variation of the image pickup devices is corrected by a pixel gain circuit 102. After that, a white balance is corrected by a WB (White Balance) circuit 103 and a predetermined amount of offset is added by an offset circuit 104. An output signal of the offset circuit 104 is separately input ~~inputted~~ to the luminance signal formation processing system and chroma signal formation processing system.--

Please amend the paragraph starting at page 10, line 3 and ending at line 11, as follows:

--The R-Y and B-Y color difference signals (±11 bits) which were band limited by the low pass filter circuit 109 are sent to a chroma gain circuit 110 and saturations are adjusted. The signals again become the RGB signals (11 bits) via ~~by~~ a matrix circuit 111 ~~by~~ using an output signal from the chroma gain circuit 110 and the low band luminance signal Yℓ . An output of the matrix circuit 111 is gamma converted by a C gamma circuit 113.--

Please amend the paragraph starting at page 10, line 12 and ending at line 24, as follows:

--In the present embodiment, an output range of the C gamma circuit 113 is set to 9 bits, thereby increasing a gradient of a gamma curve in a luminance area at a predetermined level or higher. An output range of the Y gamma circuit 119 is set to 8 bits. Output signals (RGB, 9 bits) of the C gamma circuit 113 are converted into YCrCb (CrCb = ±8 bits (c9)) signals by a color conversion circuit 114 and adjusted to the signals of the number of bits (CrCb = ±7 bits (c8)) of the output apparatus such as a monitor or the like

B9 cont'd

by a bit adjustment circuit 120. (The luminance signal Yℓ which is formed by the color conversion circuit 114 is not output ~~outputted~~ to the output apparatus.)--

Please amend the paragraph starting at page 10, line 25 and ending at page 11, line 3, as follows:

B10

--The RGB signals set to 8 bits (c9) are formed ~~by~~ using the Yh signal set to 8 bits from the luminance signal formation processing system and the CrCb signals set to ±7 bits (c8) from the chroma signal formation processing system and output ~~outputted~~ to an ~~the~~ output apparatus, such as a monitor or the like.--

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Please amend the paragraph starting at page 11, line 4 and ending at line 8, as follows:

B11

--An effect of the improvement of the color gradation reconstruction, ~~reconstruction~~ which is obtained by increasing the number of output bits of the C gamma circuit 113 as a main component element of the embodiment, will be described hereinbelow.--

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Please amend the paragraph starting at page 11, line 9 and ending at line 22, as follows:

B12 cont'd

--In the present embodiment, the number of bits of the gamma conversion of the chroma signal is set to be larger than that of the luminance gamma conversion, thereby preventing a deterioration of the color gradations. A curve 503 in Fig. 5 shows a gamma curve of 9 bits and a gradient of the curve in a range from the middle luminance area to the

high luminance area can be increased relative to ~~than~~ that of the 8-bit gamma curve 502 because the maximum output is larger than that of the 8-bit gamma. Therefore, a level difference among the RGB signals after the gamma conversion does not change to a level larger than that of 8 bits of C gamma. Thus, the saturation in the high luminance area is hardly deteriorated (refer to Fig. 5(b)).--

B12 Cont

Please amend the paragraph starting at page 12, line 15 and ending at line 17, as follows:

B13

--An example of the gamma conversion using the output characteristics of RGB 9 bits according to the embodiment will be discussed ~~mentioned~~ hereinbelow.--

Please amend the paragraph starting at page 13, line 26 and ending at page 14, line 3, as follows:

B14

--Saturation ~~The saturation~~ in the case of a C ~~the C~~ gamma curve 503 of 9 bits is stronger than that of a C ~~the C~~ gamma curve 502 of 8 bits, ~~the~~ deviation of the hue is also smaller, and a white skip of the color occurs less.--

Please amend the paragraph starting at page 14, line 3 and ending at line 10, as follows:

B15 Cont

--According to the present embodiment, ~~embodiment~~ with the above construction, by setting the number of output bits of the gamma conversion of the chroma signal to a value larger than that of the luminance gamma conversion and by using a gamma ~~the gamma~~ curve which does not reduce the gradations of the high luminance area,

B15 cont

a deterioration of the color gradation reconstruction of the reproduction image is prevented.--

Please amend the paragraph starting at page 14, line 11 and ending at line 22, as follows:

B16

--For example, when the number of input bits of the output apparatus, ~~apparatus~~ such as a monitor or the like, ~~like~~ is equal to 8, in the signal processing apparatus of the present embodiment, the input of the Y gamma circuit is set to 11 bits, its output is set to 8 bits, the input of the C gamma circuit is set to 11 bits, and its output is set to 9 bits. By setting the output of the C gamma circuit to 9 bits, ~~bits~~ as mentioned above, when the 8-bit gamma is used, the gradient in the luminance area at the saturated predetermined level or higher can be set to be larger, and ~~the~~ color crush can be fairly reduced.--

Please amend the paragraph starting at page 14, line 23 and ending at page 15, line 15, as follows:

B17 cont

--To form the final RGB image signals by mixing with the output luminance signal Yh of the Y gamma circuit, the output signals (RGB, 9 bits) of the C gamma circuit are color converted into ~~the~~ YCrCb signals. The CrCb signals obtained by ~~the~~ color conversion are non-linearly operated to the bit width (±7 bits) of the output apparatus in accordance with the bit width of the output apparatus. In a ~~the~~ non-linear arithmetic operation, even if the RGB signals have a range ~~the range~~ of 9 bits, the color difference signals do not increase extremely, ~~extremely~~ so long as the saturation and the illuminance are not abnormally large. Even if the signals after ~~the~~ color difference conversion are non-linearly converted and the number of bits is reduced, a resultant picture is not

adversely influenced. Therefore, if the C gamma curve, ~~curve~~ as shown by the curve 503 in Fig. 5, is ~~5 is~~ used, for example, the color reconstruction, white crush, and change in hue (discoloration) in the high luminance area are remarkably improved.--

Please amend the paragraph starting at page 15, line 17 and ending at line 23, as follows:

--Although ~~the~~ CrCb conversion has been performed in the color conversion circuit 114 in the above embodiment, YUV conversion also can be ~~also~~ performed in accordance with a format of the output apparatus at the post stage. In this case, chroma ~~a~~ ~~chroma~~ signal conversion is executed in the color conversion circuit 114 ~~by~~ using the following arithmetic operations.--

Please amend the paragraph starting at page 15, line 25 and ending at line 26, as follows:

--(The converted Y signal is not actually output ~~outputted~~ to the output apparatus.)--

Please amend the paragraph starting at page 16, line 5 and ending at line 15, as follows:

--Even in the case of performing ~~the~~ CrCb conversion in the color conversion circuit 114, if the maximum output of the C gamma circuit 113 is set such that ~~lest~~ the output exceeds ±7 bits (in the present embodiment, it is sufficient to set the maximum output to 365 or less), such a construction that one upper bit is omitted and only

B20 cont

eight lower bits are output ~~outputted~~ can be obtained in the bit adjustment circuit 120. With respect to UV conversion, the same process can be applied. According to such construction, a burden of processes in the bit adjustment circuit 120 at the post stage is reduced.--